## AMENDMENTS TO THE CLAIMS

**Listing of Claims:**

1-9. (Cancelled)

10. (Currently amended) ~~The~~ An expression vector ~~of Claim 9,~~ comprising an isolated Lipid Metabolism Protein (LMP) nucleic acid comprising a polynucleotide sequence encoding a polypeptide that functions as a modulator of a seed storage compound in a plant, wherein the polynucleotide sequence is selected from the group consisting of:

a) the polynucleotide sequence as shown in SEQ ID NO:23;

b) a polynucleotide sequence encoding the polypeptide as shown in SEQ ID NO:24;

c) a polynucleotide sequence having at least 70% sequence identity with the LMP nucleic acid of a) or b) above;

d) a polynucleotide sequence encoding a polypeptide having at least 70% identity with the amino acid sequence of SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes to complement of the full-length polynucletotide sequence of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C;

wherein the LMP nucleic acid is operatively linked to a heterologous promoter selected from the group consisting of a seed-specific promoter, a root-specific promoter, and a non-tissue-specific promoter; and wherein expression of the polynucleotide in a plant results in an increase in the level of a seed storage compound in the plant.

11. (Currently amended) A method of producing a transgenic plant having a modified level of a seed storage compound comprising, transforming a plant cell with an expression vector comprising a lipid metabolism protein (LMP) nucleic acid and generating from the plant cell the transgenic plant, wherein expression of the nucleic acid ~~encodes a polypeptide that functions as a modulator~~ results in an increase in the level of a seed storage compound in the transgenic plant compared to a wild type variety of the plant, and wherein the nucleic acid comprises a polynucleotide sequence selected from the group consisting of:

a) a polynucleotide sequence as defined in ~~SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21,~~ SEQ ID NO:23~~, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:71, SEQ ID NO:73, SEQ ID NO:75, SEQ ID NO:77, SEQ ID NO:79, and SEQ ID NO:81~~;

b) a polynucleotide sequence encoding a polypeptide as defined in ~~SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22,~~ SEQ ID NO:24~~, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:72, SEQ ID NO:74, SEQ ID NO:76, SEQ ID NO:78, SEQ ID NO:80, and SEQ ID NO:82~~;

c) a polynucleotide sequence having at least 70% sequence identity with the LMP nucleic acid of a) or b) above,

d) a polynucleotide sequence ~~that is complementary to the full-length LMP nucleic acid of a) or b) above,~~ encoding a polypeptide having at least 70% identity to the amino acid sequence of SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes ~~under stringent conditions~~ to the complement of the full-length nucleic acid of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

12. (Currently amended) The method of Claim 11, wherein the LMP nucleic acid comprises [[a]] the polynucleotide sequence ~~selected from the group consisting~~ of ~~SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID~~

~~NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21,~~ SEQ ID NO:23~~, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:71, SEQ ID NO:73, SEQ ID NO:75, SEQ ID NO:77, SEQ ID NO:79, and SEQ ID NO:81~~.

13. (Currently amended) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide sequence encoding [[a]] the polypeptide ~~selected from the group consisting~~ of ~~SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22,~~ SEQ ID NO:24~~, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:72, SEQ ID NO:74, SEQ ID NO:76, SEQ ID NO:78, SEQ ID NO:80, and SEQ ID NO:82~~.

14-15. (Cancelled)

16. (Original) The method of Claim 11, wherein the LMP nucleic acid is operatively linked to a heterologous promoter selected from the group consisting of a seed-specific promoter, a root-specific promoter, and a non-tissue-specific promoter.

17-19. (Cancelled).

20. (Previously presented) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide having at least 90% sequence identity with the LMP nucleic acid of a) or b) of Claim 11.

21. (Currently amended) The method of Claim 11, wherein the ~~LMP~~ nucleic acid comprises a ~~first~~ nucleic acid that hybridizes ~~under stringent conditions~~ to the complement of the full-length nucleic acid of a) or b) of Claim 11 under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

22. (Currently amended) The method of Claim 11, wherein the LMP nucleic acid comprises a polynucleotide ~~complementary to the LMP nucleic acid of a) or b) of Claim 11~~ sequence encoding a polypeptide having at least 70% identity with the amino acid sequence of SEQ ID NO: 24.

23. (Cancelled).

24. (Currently amended) A method of modulating the level of a seed storage compound in a plant comprising ~~modifying~~ increasing the expression of a ~~Lipid Metabolism Protein (LMP)~~ digalactosyldiacylglycerolsynthase nucleic acid in the plant, wherein expression of the nucleic acid results in an increase in the level of a seed storage compound in the plant, and wherein the ~~LMP~~ nucleic acid, comprises a polynucleotide sequence selected from the group consisting of:

a) a polynucleotide sequence as defined in ~~SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21,~~ SEQ ID NO:23~~, SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:71, SEQ ID NO:73, SEQ ID NO:75, SEQ ID NO:77, SEQ ID NO:79, and SEQ ID NO:81~~;

b) a polynucleotide sequence encoding a polypeptide as defined in ~~SEQ ID NO:2,~~ SEQ ID NO:4, ~~SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22,~~ SEQ ID NO:24~~, SEQ ID NO:26, SEQ ID NO:28, SEQ ID~~ NO:30~~, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:54, SEQ ID NO:56, SEQ ID NO:58, SEQ ID NO:60, SEQ ID NO:62, SEQ ID NO:64, SEQ ID NO:66, SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:72, SEQ ID NO:74, SEQ ID NO:76, SEQ ID NO:78, SEQ ID NO:80, and SEQ ID NO:82~~;

c) a polynucleotide sequence having at least 70% sequence identity with the ~~LMP~~ nucleic acid of a) or b) above;

d) a polynucleotide sequence ~~that is complementary to the~~ full-length LMP nucleic ~~acid of a) or b) above~~ encoding a polypeptide having at least 70% identity with the amino acid sequence of SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes ~~under stringent conditions~~ to the complement of the full-length nucleic acid of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

25-32. (Cancelled)

33. (Previously presented) The method of Claim 11, wherein the nucleic acid encodes a polypeptide that contains a lipid metabolism domain.

34. (Currently amended) The method of Claim 33, wherein the nucleic acid encodes [[a]] the polypeptide ~~selected from the group consisting~~ of ~~SEQ ID NO:6, SEQ ID NO:10, SEQ ID NO:14, SEQ ID NO:18, SEQ ID NO:22,~~ SEQ ID NO:24, ~~SEQ ID NO:26, and SEQ ID NO:30~~.

35-36. (Cancelled)

37. (Currently amended) A transgenic plant made by a method comprising, transforming a plant cell with an expression vector comprising a lipid metabolism protein (LMP) nucleic acid, and generating from the plant cell the transgenic plant, wherein expression of the LMP nucleic acid in the plant results in ~~a modified~~ an increased level of a seed storage compound in the transgenic plant as compared to a wild type variety of the plant, and wherein the nucleic acid comprises a polynucleotide sequence selected from the group consisting of:

a) a polynucleotide sequence as defined in ~~SEQ ID NO:1, SEQ ID NO:3, SEQ ID NO:5, SEQ ID NO:7, SEQ ID NO:9, SEQ ID NO:11, SEQ ID NO:13, SEQ ID NO:15, SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21,~~ SEQ ID NO:23, ~~SEQ ID NO:25, SEQ ID NO:27, SEQ ID NO:29, SEQ ID NO:31, SEQ ID NO:33, SEQ ID NO:35, SEQ ID NO:37, SEQ ID NO:39, SEQ ID NO:41, SEQ ID NO:43, SEQ ID NO:45, SEQ ID NO:47, SEQ ID NO:51, SEQ ID NO:53, SEQ ID NO:55, SEQ ID NO:57, SEQ ID~~

~~NO:59, SEQ ID NO:61, SEQ ID NO:63, SEQ ID NO:65, SEQ ID NO:67, SEQ ID NO:69, SEQ ID NO:71, SEQ ID NO:73, SEQ ID NO:75, SEQ ID NO:77, SEQ ID NO:79, and SEQ ID NO:81~~;

b) a polynucleotide sequence encoding a polypeptide as defined in ~~SEQ ID NO:2, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8, SEQ ID NO:10, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:16, SEQ ID NO:18, SEQ ID NO:20, SEQ ID NO:22,~~ SEQ ID NO:24~~, SEQ ID NO:26, SEQ ID NO:28, SEQ ID NO:30, SEQ ID NO:32, SEQ ID NO:34, SEQ ID NO:36, SEQ ID NO:38, SEQ ID NO:40, SEQ ID NO:42, SEQ ID NO:44, SEQ ID NO:46, SEQ ID NO:48, SEQ ID NO:52, SEQ ID NO:54,~~ SEQ ID ~~NO:56, SEQ ID NO:58, SEQ ID~~ NO:60, SEQ ID NO:62, ~~SEQ ID NO:64, SEQ ID NO:66, SEQ ID NO:68, SEQ ID NO:70, SEQ ID NO:72, SEQ ID NO:74, SEQ ID NO:76, SEQ ID NO:78, SEQ ID NO:80, and SEQ ID NO:82~~,

c) a polynucleotide sequence having at least 70% sequence identity with the LMP nucleic acid of a) or b) above;

d) a polynucleotide sequence ~~that is complementary to the full-length LMP nucleic acid of a) or b) above~~ encoding a polypeptide having at least 70% identity to SEQ ID NO: 24; and

e) a polynucleotide sequence that hybridizes ~~under stringent conditions~~ to the complement of the full-length nucleic acid of a) or b) above under stringent conditions of 6X sodium chloride/sodium citrate (SSC) at 65°C followed by one or more washes in 0.2 X SSC at 50 to 65°C.

38. (Original) The transgenic plant of Claim 37, wherein the plant is a dicotyledonous plant.

39. (Original) The transgenic plant of Claim 37, wherein the plant is a monocotyledonous plant.

40. (Original) The transgenic plant of Claim 37, wherein the plant is an oil producing species.

41-46. (Cancelled).

47. (New) The method of Claim 11, wherein the nucleic acid comprises a polynucleotide encoding a polypeptide having at least 80% sequence identity to SEQ ID NO: 24.